

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: ZIEGLER, Friedrich
Serial No: 10/620,217
Filed: July 15, 2003
For: REFLECTION-PHOTOMETRIC ANALYTICAL SYSTEM
Art Unit: 3662
Examiner: Isam A. Alsomiri

RESPONSE UNDER 37 CFR §1.111

Mail Stop Non-Fee Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

July 5, 2006

Dear Sir:

This reply is in response to the Official Action dated April 6, 2006 which has a shortened statutory period for response of three months that expires on July 6, 2006.

AMENDMENTS TO THE SPECIFICATION

Please amend the specification on page 2, lines 4-6, as follows:

The combination of features stated in the claims 1 ~~and~~ 18 are proposed to solve this problem. Advantageous embodiments and further developments of the invention are derived from the dependent claims.

Please amend the section heading on page 1 as follows:

Description Background of the invention

Please insert the following section heading on page 2, following line 6:

Summary of the invention

Please insert the following section heading on page 4, following line 17:

Brief description of the drawings

Please insert the following section heading on page 5, following line 3:

Detailed description of the invention

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1-41) (cancelled)

42. (currently amended) An analytical system for reflectometric analysis of an analyte in a sample liquid comprising:

a test strip provided with a target-surface test field for application of the sample liquid wherein the test field including the applied sample liquid has a target surface;

a measuring head arranged at a distance from the target surface, wherein the measuring head comprises a source for radiating the sample target surface and a detector for measuring radiation reflected by the sample target surface;

an optical triangulation unit for detecting the distance between the measuring head and the target surface, wherein the triangulation unit comprises a light emitter directed towards the target surface in an incidence axis and a light receiver pointing towards the target surface in the direction of a receiving axis and wherein the incidence and receiving axis intercept at a reference point at a specified angle; and

a control device for adjusting the distance between the measuring head and the target surface to a predetermined value, thereby permitting accurate analysis of the analyte by the measuring head.

43. (previously presented) The analytical system as claimed in claim 42, wherein the reference point defines a reference position of the target surface.

44. (previously presented) The analytical system as claimed in claim 42, wherein the incidence and receiving axis enclose different angles relative to a perpendicular on the target surface.

45. (previously presented) The analytical system as claimed in claim 42, wherein the light receiver has a sensor, which is position-resolving at right angles to the receiving axis.

46. (previously presented) The analytical system as claimed in claim 45, wherein the sensor is a PSD sensor, CCD sensor or multi-element diode sensor.

47. (previously presented) The analytical system as claimed in claim 42, wherein the light receiver is a double sensor with two single sensors preferably arranged next to one another and symmetrically to the receiving axis.
48. (previously presented) The analytical system as claimed in claim 42, wherein the light receiver has a collecting optical system whose optical axis defines the receiving axis for focussing the light reflected from the target surface.
49. (currently amended) The analytical system as claimed in claim 42, wherein the light emitter has a light source ~~in particular a point light source~~ and a collimating optical system whose optical axis defines the incidence axis for generating a light beam which is incident on the target surface.
50. (previously presented) The analytical system as claimed in claim 42, wherein the light emitter has a modulation stage for the time-varying actuation of a light source.
51. (previously presented) The analytical system as claimed in claim 42, wherein the light emitter has an edge generator to produce non-linear increasing or decreasing light pulses.
52. (previously presented) The analytical system as claimed in claim 42, wherein the triangulation unit has a signal processing circuit for determining changes in the distance relative to a reference position on the target surface.
53. (previously presented) The analytical system as claimed in claim 52, wherein the signal processing circuit has a comparator and a timer to determine the time interval between specified signal amplitudes of output signals of the triangulation unit.
54. (previously presented) The analytical system as claimed in claim 42, wherein the control device sets the constant measuring distance between the target surface and measuring head by means of a servodrive.
55. (previously presented) The analytical system as claimed in claim 42, further comprising a path measuring device to record the path of the measuring head for determining a height profile of the test object.
56. (previously presented) The analytical system as claimed in claim 55, wherein the path measuring device has a height profile store to identify the test object.

57. (previously presented) The analytical system as claimed in claim 42, further comprising an evaluation unit to standardize the results of the photometric analysis of the triangulation unit on the basis of the distance between the target surface and the measuring head.
58. (currently amended) The analytical system as claimed in claim 42, wherein the light source is at the same time the light emitter and/or the radiation detector is at the same time the light receiver of the triangulation unit.
59. (currently amended) A method for reflectometric analysis of an analyte in a sample liquid comprising:
- applying the sample liquid to a target surface of a test strip to form a test field having a target surface;
- arranging the target surface at a distance from a measuring head, wherein the measuring head comprises a source for radiating the sample and a detector for measuring radiation reflected by the sample;
- detecting the distance between the measuring head and target surface by means of an optical triangulation unit comprising a light emitter directed towards the target surface in an incidence axis and a light receiver pointing towards the target surface in the direction of a receiving axis; and
- adjusting, by means of a control device, the distance between the measuring head and the target surface to a predetermined value, thereby permitting accurate analysis of the analyte by the measuring head.
60. (currently amended) The method as claimed in claim 39 52, wherein the changes in the distance relative to a reference distance of the target surface are detected by means of a corresponding light deflection onto a light receiver of the triangulation unit.
61. (currently amended) The method as claimed in claim 39 52, wherein the distance is kept constant at the predetermined value by means of a control device.
62. (previously presented) The analytical system as claimed in claim 42, wherein the light emitter has a modulation stage for the pulsed-shaped actuation of a light source.

63. (previously presented) The analytical system as claimed in claim 42, wherein the light emitter has an edge generator to produce exponentially increasing or decreasing light pulses.

REMARKS

In view of the preceding amendments and the comments which follow, and pursuant to 37 CFR §1.111, amendment and reconsideration of the Official Action of April 6, 2006 is respectfully requested by Applicant.

The specification has been amended to add section headings and to delete a reference to specific claim numbers. No new matter has been added.

Claims 42, 49, and 58-61 have been amended. Support for the amendment to claim 42 is found in the specification on page 5, lines 9-13. No new matter has been added.

Claims 42-63 are currently pending for examination.

Objection to specification

The examiner has objected to the specification and has requested that section headings be added. The applicant has now amended his specification accordingly, and he respectfully requests the examiner's reconsideration.

Rejections under 35 USC §112, first and second paragraphs

Claims 42-63 have been rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement. The examiner argues that the disclosure does not explain how the distance between the measurement head and the target surface is measured or controlled. The specification and the claims recite radiating the sample and receiving reflection off the sample not the surface, then controlling the distance between the sample and the surface.

Claims 42-63 have been rejected under 35 USC 112, second paragraph. The examiner argues that it is not clear what distance is being measured, and what distance is being adjusted. He argues that the measurements are inconsistent. Further, the examiner notes that in claim 58, the language "and/or" is not a clear recitation.

The applicant has now amended the claims to provide clarity and to fix any apparent inconsistencies. The "and/or" recitation in claim 58 has been eliminated. Applicant explains that the test field 20 (Fig. 1) is an area on the test strip on which sample liquid is applied (page 5, second full paragraph). The test field absorbs the liquid to a certain amount, which results in different degrees of swelling (page 1, lines 11-14). The uppermost surface of the test field after application of the liquid sample

is the target surface 12 for the reflectometric measurement (page 5, line 13 and Fig. 1). Applicant respectfully requests the examiner's reconsideration of the rejections under 35 USC 112, first and second paragraphs.

Applicant submits that his application is now in condition for allowance, and favorable reconsideration of his application in light of the above amendments and remarks is respectfully requested. Allowance of claims 42-63 at an early date is earnestly solicited.

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The examiner is hereby authorized to charge any fees associated with this Amendment to Deposit Account No. 02-2958. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

A handwritten signature in cursive script, reading "Marilyn L. Amick", written over a horizontal dotted line.

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